

## RESEARCH PRODUCTIVITY OF DEGREE COLLEGE TEACHERS IN GOA UNIVERSITY: A STUDY

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### Abstract

Research is one the most important activity in higher education. Universities and colleges are providing ample opportunity for the researcher to find out innovative ideas in the respective field. At the same time, it is required to measure the performance of research in the universities. In this paper, an attempt has been made to evaluate the faculty members involved in the research activity in the academic colleges of Goa University.

**Keywords:** Research, Higher Education, Research Productivity, Return on Investment

### 1. Introduction:

Today, there is a constant need to measure and quantify activities performed at colleges and universities. Higher education institutions need to comply with government mandates, review programs and substantiate accreditation.

In India, government and private organizations are spending huge amount of time, money and resources on teaching, learning, research and development activities. Indian government spends an estimated 1% of its GDP on research and development. Most of the higher learning institutes, Research and Development institutes have no idea what they are getting by investing this money. Only a few higher learning institutions and Research & Development institutes measure some kind of return on investment in R&D.

Publication productivity is the measure of the relationship between the output of research and inputs. Evaluating the productivity of an institutional research and developmental activities, it highlights the contribution of the institution and the individuals engaged in research. It also provides some insights into the complex dynamics of research activity and enables policy

makers and administrators to provide adequate facilities and gauge the research activities in a proper direction. A well known productivity indicator is the number of publications produced by scientists, institutions, teachers or research groups.

Return on Investment in simple words is a quantitative measure expressed as a ratio of the value returned to the institution for each monetary unit invested in it. Typical outputs which can easily be measured to calculate Return On Investment include the number of:-

- Awards won by individual / institution.
- Books written
- Designs produced
- Patents registered
- Products designed
- Presentations made in conferences / symposiums / Seminars
- Papers published in national and international journals.
- Projects completed in a particular duration
- Research proposals written etc

Now a days, management of the institution in higher education is asking their administrators to demonstrate the productivity / usage of the infrastructure which they have procured and to prove that how the organization got the benefit on investing on these resources.

## 2. Objectives of the Study:

The following are the objectives of the study:-

- To know the contributions of the faculties towards the research.
- To know the workshops / conferences organized by the government colleges.
- To know the differences in the contributions of private aided and government colleges in research.
- To know the difference of Rural / Urban college research productivity.

## 3. Scope and Limitations of the Study:

The study attempts to highlight the research productivity / publication output in both government aided private colleges and government colleges affiliated to Goa University in a two year time during 2010-11 and 2011-12, and it is limited to publications of a national and international journals and conference/seminars only.

## 4. Data Analysis and Interpretations:

The data analyzed would help to enrich individual / institutional contribution and growth of research in the field of Arts, Science and Commerce.

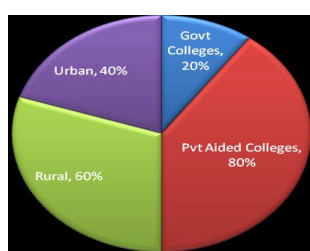
Table – 1 Ownership wise and Area-wise Distribution of Colleges

Sl. No.	Name of the Colleges	Ownership	%age	Area	%age
1.	Govt. College of Arts & Commerce, Pernem	Govt.	5%	Rural	5%
2.	Shree Mallikarjun College of Arts & Commerce, Canacona	Pvt Aided	5%	Rural	5%
3.	Fr. Agnel College of Arts & Commerce, Pilar	Pvt Aided	5%	Rural	5%
4.	Zantye Brother's Educational Foundation's College of Commerce, Bicholim	Pvt Aided	5%	Rural	5%
5.	Rosary College of Arts & Commerce, Navelim	Pvt Aided	5%	Rural	5%
6.	Govt. College of Arts, Science & Commerce, Khandola	Govt.	5%	Rural	5%
7.	MES Cololege of Arts & Commerce, Zuarinagar	Pvt Aided	5%	Rural	5%
8.	GVM's College of Commerce & Economics, Ponda	Pvt Aided	5%	Rural	5%
9.	Carmel College for Women, Nuvem, Salcete	Pvt Aided	5%	Rural	5%
10.	Govt. College of Arts, Science & Commerce, Quepem	Govt.	5%	Rural	5%
11.	PES College of Arts & Science, Ponda	Pvt Aided	5%	Rural	5%
12.	DM's College of Arts, Science and Commerce, Mapusa	Pvt Aided	5%	Rural	5%
13.	Saraswat Vidyalaya Society's College of Commerce & Management Studies, Mapusa	Pvt Aided	5%	Urban	5%
14.	CES's College of Arts & Commerce, Cuncolim	Pvt Aided	5%	Urban	5%
15.	S.S.Dempo College of Commerce & Economics, Altinho, Panaji	Pvt Aided	5%	Urban	5%
16.	Govt. College of Arts, Science & Commerce, Sanquelim	Govt.	5%	Urban	5%
17.	Dhempe College of Arts & Science, Miramar, Panaji	Pvt Aided	5%	Urban	5%
18.	Shree Damodar College of Commerce & Economics, Margao	Pvt Aided	5%	Urban	5%
19.	Smt. Parvatibai Chowgule College of Arts & Science, Margao	Pvt Aided	5%	Urban	5%
20.	St. Xavier's Colege of Arts & Science, Mapusa	Pvt Aided	5%	Urban	5%

Table-1 depicts the ownership wise distribution of the degree colleges, 20 % are state government colleges, and 80 % are government aided private colleges available in Goa. According to discipline wise, 55 % of the institutions belong to Arts and Commerce Colleges, 15 % colleges are related to Arts & Science colleges, 20 % of the colleges belong to Arts, Science and Commerce colleges, each 5 % of the colleges are belong to Commerce

and Management is covered in this study. Majority of the colleges are in the Commerce field, followed by Arts and Science field.

60 % of these colleges are in the rural area and remaining 40 % are in urban area. It shows that, in goa majority of the colleges are in the rural areas.



**Fig 1:**

**Table – 2 Year of Establishment of Colleges**

Sl. No.	Name of the Colleges	Year of Establishment	% age
1.	Dhempe College of Arts & Science, Miramar, Panaji	1962	5%
2.	Smt. Parvatibai Chowgule College of Arts & Science, Margao	1962	5%
3.	St. Xavier's College of Arts & Science, Mapusa	1963	5%
4.	Carmel College for Women, Nuvem, Salcete	1964	5%
5.	S.S.Dempo College of Commerce & Economics, Altinho, Panaji	1966	5%
6.	MES Cololege of Arts & Commerce, Zuarinagar	1972	5%
7.	Shree Damodar College of Commerce & Economics, Margao	1973	5%
8.	DM's College of Arts, Science and Commerce, Mapusa	1974	5%
9.	GVM's College of Commerce & Economics, Ponda	1986	5%
10.	PES College of Arts & Science, Ponda	1986	5%
11.	CES's College of Arts & Commerce, Cuncolim	1987	5%
12.	Govt. College of Arts, Science & Commerce, Sanquelim	1988	5%
13.	Govt. College of Arts, Science & Commerce, Khandola	1989	5%
14.	Govt. College of Arts, Science & Commerce, Quepem	1989	5%
15.	Rosary College of Arts & Commerce, Navelim	1990	5%
16.	Saraswat Vidyalaya Society's College of Commerce & Management Studies, Mapusa	1991	5%
17.	Fr. Agnel College of Arts & Commerce, Pilar	1991	5%
18.	Govt. College of Arts & Commerce, Pernem	1993	5%
19.	Shree Mallikarjun College of Arts & Commerce, Canacona	1993	5%
20.	Zantye Brother's Educational Foundation's College of Commerce, Bicholim	1994	5%

Table-2 shows that, establishment year of the colleges. During the year 1960 to 1969 there are 25 % private aided colleges were established, in the preceding year 1970 to 1979 only 15 % private colleges are opened with government aid. Each 30 % colleges are opened in the year 1980 to 1989 (three government aided private colleges and three government colleges) and 1990 to 1999 (five government aided private colleges and one Govt. College).

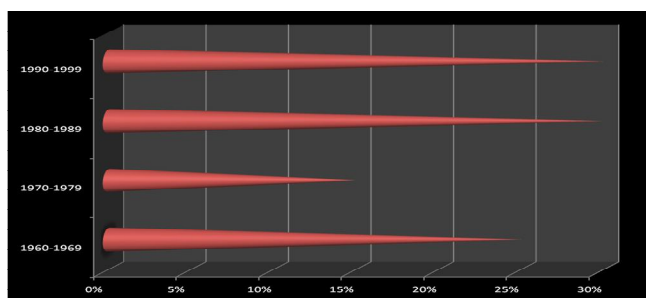
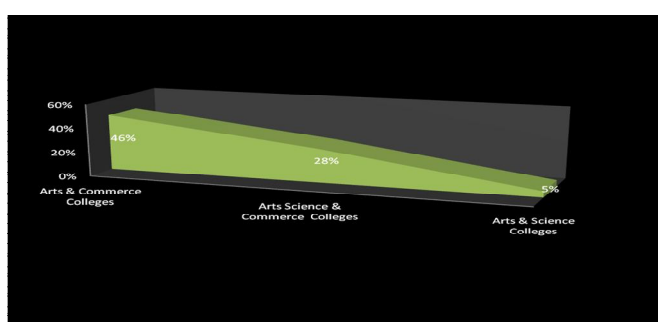


Fig 2:

Table – 3 Faculty Strength wise Distribution of Colleges

Name of the Colleges	Discipline	Area	Faculty Strengths (%age)
Govt. College of Arts & Commerce, Pernem	A & C	Rural	12 (1.6)
Shree Mallikarjun College of Arts & Commerce, Canacona	A & C	Rural	17(2.3)
Fr. Agnel College of Arts & Commerce, Pilar	A & C	Rural	18(2.5)
CES's College of Arts & Commerce, Cuncolim	A & C	Urban	19(2.6)
S.S.Dempo College of Commerce & Economics, Altinho, Panaji	A & C	Urban	20(2.8)
Rosary College of Arts & Commerce, Navelim	A & C	Rural	27(3.8)
MES Cololege of Arts & Commerce, Zuarinagar	A & C	Rural	31(4.3)
GVM's College of Commerce & Economics, Ponda	A & C	Rural	37(5.2)
Dhempe College of Arts & Science, Miramar, Panaji	A & C	Urban	44(6.1)
PES College of Arts & Science, Ponda	A & C	Rural	48(6.7)
Shree Damodar College of Commerce & Economics, Margao	A & C	Urban	57(8)
Smt. Parvatibai Chowgule College of Arts & Science, Margao	A & S	Urban	62(8.7)
St. Xavier's Colege of Arts & Science, Mapusa	A & S	Urban	82(11.5)
Govt. College of Arts, Science & Commerce, Khandola	ASC	Rural	28(3.9)
Govt. College of Arts, Science & Commerce, Sanquelim	ASC	Urban	36(5)
Carmel College for Women, Nuvem, Salcete	ASC	Rural	38(5.3)
Govt. College of Arts, Science & Commerce, Quepem	ASC	Rural	39(5.4)
DM's College of Arts, Science and Commerce, Mapusa	ASC	Rural	57(8)
Zantye Brother's Educational Foundation's College of Commerce, Bicholim	C	Rural	24(3.3)
Saraswat Vidyalaya Society's College of Commerce & Management Studies, Mapusa	C & M	Urban	14(1.9)
<b>Total</b>			<b>710(100)</b>

Table-3 indicates the faculty strength in academic degree colleges, teaching staff are the main pillars of any educational institutions, St. Xavier College of Arts & Science, situated at Mapusa in North Goa District is having highest faculty strength i.e. 11% of the total faculty strength of the degree colleges, which is one of the oldest colleges established in the year 1963, followed by 8.7 % of the faculty strength is in Smt. Parvatibai Chowgule College of Arts and Commerce. It is also the oldest college established in the year 1962 and situated at Margao in South Goa District. Govt. College of Arts and Commerce Pernem and Saraswath College of Commerce and Management Studies is having least faculty strength i.e.: -1.6 and 1.9 % respectively. Average 35 numbers of faculties are working in these 20 degree colleges.



**Fig 3:**

If we see, discipline wise teaching staff strength then, Arts and Commerce colleges are having 46 % of the total faculties followed by 28% faculties are in Arts, Science and Commerce colleges, 20% faculties belonged to Arts and Science colleges, only 5% college staffs are working in Commerce and Management colleges.

**Table-4 No. of Conferences / Workshops Organized By the Colleges**

Sl. No.	Name of the Colleges	2010-11			2011-12		
		Total No. of Conference/ workshops Organised	No. of Publications		Total No. of Conference/ workshops Organised	No. of Publications	
			Pub	Bks		Pub	Bks
1.	Carmel College for Women, Nuvem, Salcete	4 (3.9)	5 (8.7)	5 (15.1)	6 (5.7)	-	-
2.	CES's College of Arts & Commerce, Cuncolim	1 (0.9)	3 (5.2)	2 (6)	2 (1.9)	-	-
3.	Dhempe College of Arts & Science, Miramar, Panaji	8(7.8)	<b>9 (15.7)</b>	1 (3)	5 (4.7)	10 (9.9)	1 (3)
4.	DM's College of Arts, Science and Commerce, Mapusa	2 (1.9)	4 (7)	-	6 (5.7)	<b>16 (15.8)</b>	-
5.	Fr. Agnel College of Arts & Commerce, Pilar	3 (2.9)	5 (8.7)	-	6 (5.7)	1 (0.9)	-

6.	Govt. College of Arts & Commerce, Pernem	1 (0.9)	2 (3.5)	<b>6 (18.1)</b>	3 (2.8)	3 (2.9)	2 (6)
7.	Govt. College of Arts, Science & Commerce, Khandola	2 (1.9)	5 (8.7)	5 (15.1)	-	5 (4.9)	2 (6)
8.	Govt. College of Arts, Science & Commerce, Quepem	2 (1.9)	-	4 (12.1)	4 (3.8)	3 (2.9)	2 (6)
9.	Govt. College of Arts, Science & Commerce, Sanquelim	10 (9.8)	-	-	-	3 (2.9)	-
10.	GVM's College of Commerce & Economics, Ponda	5 (4.9)	-	-	1 (0.9)	-	-
11.	MES College of Arts & Commerce, Zuarinagar	4 (3.9)	-	-	7 (6.6)	-	-
12.	PES College of Arts & Science, Ponda	1 (0.9)	4 (7)	2 (6)	-	3 (2.9)	-
13.	Rosary College of Arts & Commerce, Navelim	<b>12 (11.7)</b>	3 (5.2)	-	<b>12 (11.4)</b>	1 (0.9)	1 (3)
14.	S.S.Dempo College of Commerce & Economics, Altinho, Panaji	-	<b>10 (17.5)</b>	<b>6 (18.1)</b>	-	5 (4.9)	-
15.	Saraswat Vidyalaya Society's College of Commerce & Management Studies, Mapusa	4 (3.9)	-	-	3 (2.8)	-	-
16.	Shree Damodar College of Commerce & Economics, Margao	3 (2.9)	1 (1.7)	-	6 (5.7)	<b>16 (15.8)</b>	-
17.	Shree Mallikarjun College of Arts & Commerce, Canacona	5 (4.9)	-	-	3 (2.8)	-	1 (3)
18.	Smt. Parvatibai Chowgule College of Arts & Science, Margao	9 (8.8)	6 (10.5)	2 (6)	11 (10.4)	<b>16 (15.8)</b>	<b>3 (9)</b>
19.	St. Xavier's College of Arts & Science, Mapusa	<b>22 (21.5)</b>	-	-	<b>24 (22.8)</b>	<b>19 (18.8)</b>	<b>21 (63.6)</b>
20.	Zantye Brother's Educational Foundation's College of Commerce, Bicholim	4 (3.9)	-	-	6 (5.7)	-	-
		102	57	33	105	101	33

The emphasis on research productivity is the faculty incentive and reward system is often justified by the claim that research enhances teaching. Educational research must be strengthened as an instrument for improving educational quality, and the results of such research should be communicated to teachers in a better way through Conferences, Seminars and Workshops. Table-4 informs us that, 21 % of the conference / workshops are organized by the St. Xavier College of Arts and Science, followed by 12 % of the workshops/conferences are organized in the Rosary College of Arts and Commerce and 10 % by the

Govt. College of Arts, Science and Commerce, Sanquelim during the year 2010-11. It shows that, 85 % of the workshops/conferences are organized by the private aided colleges and remaining 15 % of the workshops/conferences are organized by the Government colleges. Private aided colleges are very active in organizing conferences and workshops in their field of study. It is interesting to note that, Colleges located in urban areas are conducted 56 % of the workshops/seminars/conferences whereas; colleges located in rural areas conducted 44 % workshops/conferences.

Again during the year 2011-12, 23 % of the conference / workshops are organized by the St. Xavier College of Arts and Science, followed by 12 % of the workshops/ conferences are organized in the Rosary College of Arts and Commerce and 10 % of the workshops/conferences are organized by the Smt. Parvatibai Chowgule College of Arts & Science, Margao. It shows that, 93 % of the workshops/conferences are organized by the private aided colleges and remaining 7 % of the workshops/conferences are organized by the Government colleges. It is interesting to note that, Colleges located in urban areas have conducted 60 % of the workshops/seminars/conferences whereas; colleges located in rural areas have conducted 40 % workshops/conferences.

St. Xavier college of Arts & Science and Rosary College of Arts and Commerce both the colleges are organized /conducted highest number of conferences /workshops in the year 2010-2011 and 2011-2012. It is also noted from this table that, colleges located in urban areas have organized more number of conferences/workshops in both the years.

**Table-5 No. of Publications produced in the Colleges**

Sl. No.	Name of the Colleges	2010-11		2011-12	
		No. of Publications		No. of Publications	
		Pub	Bks	Pub	Bks
1.	GVM's College of Commerce & Economics, Ponda	-	-	-	-
2.	MES Cololege of Arts & Commerce, Zuarinagar	-	-	-	-
3.	Saraswat Vidyalaya Society's College of Commerce & Management Studies, Mapusa	-	-	-	-
4.	Zantye Brother's Educational Foundation's College of Commerce, Bicholim	-	-	-	-
5.	Carmel College for Women, Nuvem, Salcete	5 (8.7)	5 (15.1)	-	-
6.	CES's College of Arts & Commerce, Cuncolim	3 (5.2)	2 (6)	-	-
7.	S.S. Dempo College of Commerce & Economics, Altinho, Panaji	10 (17.5)	6 (18.1)	5 (4.9)	-
8.	Fr. Agnel College of Arts & Commerce, Pilar	5 (8.7)	-	1 (0.9)	-
9.	Govt. College of Arts, Science & Commerce, Sanquelim	-	-	3 (2.9)	-
10.	PES College of Arts & Science, Ponda	4 (7)	2 (6)	3 (2.9)	-



11.	Shree Damodar College of Commerce & Economics, Margao	1 (1.7)	-	16 (15.8)	-
12.	DM’s College of Arts, Science and Commerce, Mapusa	4 (7)	-	16 (15.8)	-
13.	St. Xavier’s College of Arts & Science, Mapusa	-	-	19 (18.8)	21 (63.6)
14.	Smt. Parvatibai Chowgule College of Arts & Science, Margao	6 (10.5)	2 (6)	16 (15.8)	3 (9)
15.	Govt. College of Arts, Science & Commerce, Khandola	5 (8.7)	5 (15.1)	5 (4.9)	2 (6)
16.	Govt. College of Arts & Commerce, Pernem	2 (3.5)	6 (18.1)	3 (2.9)	2 (6)
17.	Govt. College of Arts, Science & Commerce, Quepem	-	4 (12.1)	3 (2.9)	2 (6)
18.	Shree Mallikarjun College of Arts & Commerce, Canacona	-	-	-	1 (3)
19.	Dhempe College of Arts & Science, Miramar, Panaji	9 (15.7)	1 (3)	10 (9.9)	1 (3)
20.	Rosary College of Arts & Commerce, Navelim	3 (5.2)	-	1 (0.9)	1 (3)
		57	33	101	33

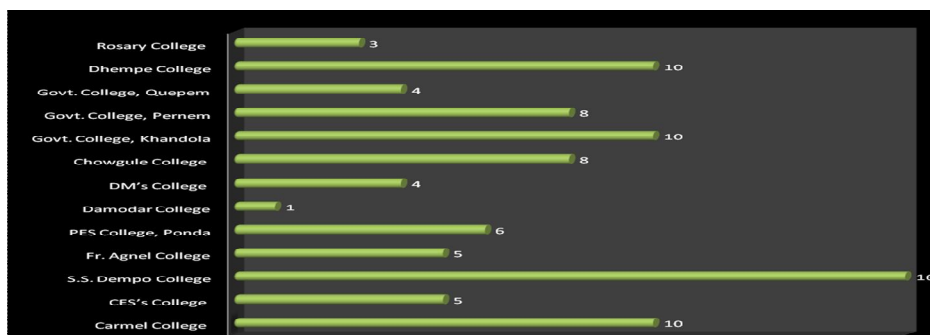
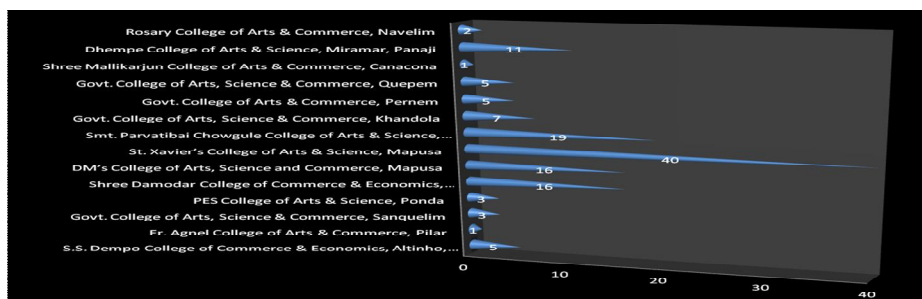


Fig 4: Publications for the year 2010-2011



**Fig 5: Publications for the year 2011-2012**

Table – 6 depicts the number of publications made by these colleges, 40 % of the colleges does not produce any publications in the form of articles in journals and conference proceedings or in the form of chapters in books for the year 2010-11, 35 % of the colleges does not publish any articles in the conference proceedings or in the journals, whereas, 60 % of the colleges have not published their articles in the form of book chapters for the year 2011-12. In the year 2010-2011, rural area college teachers published 49 % of their publications in the conference proceedings/journals and 66 % in the form of book chapters. Urban area college teachers published 51 % of their publications in the conference proceedings/journals and 34 % in the form of book chapters. In the year 2011-12, rural area college teachers published 31 % of their publications in the conference proceedings/journals and 21 % in the form of book chapters. Urban area college teachers published 68 % of their publications in the conference proceedings/journals and 78 % in the form of book chapters.

If we rank these colleges according to publication wise then, S.S. Dempo College of Commerce & Economics, Altinho, Panaji produced 18 % of the publications in the form of books and journals during the year 2010-11 followed by Dhempe college of Arts and Science with 16 % and 3 % respectively in the form of journals and book form. Whereas, during the year 2011-12, St. Xavier College, Mapusa produced 19 % of the publications in journals/conference proceedings and 64 % in the book form, followed by Smt. Parvathibai Chowgule College of Arts and Science with 16 % and 9 % respectively in the form of journals/conference proceedings and in the book form.

**5. Findings:**

1. 20 % are state government colleges, and 80 % are of grant in aid private colleges available in the state of Goa.
2. 55 % of the institutions are belonged to Arts and Commerce Colleges.
3. 60 % of the colleges are opened during the year 1980 to 1999 (eight government aided private colleges and four government colleges).
4. Average 35 numbers of faculties are working in these 20 colleges. Arts and Commerce colleges are having 46 % of the total faculty.
5. Private aided colleges are very active in organizing conferences and workshops in their field of study during the year 2010-11 and 2011-12.
6. Colleges located in urban areas have organized more number of conferences/workshops in both the years.
7. 49 % publications in journals, conferences etc are from rural colleges and 51 % publications are from urban Goa, rural college teachers' productivity is more compared to urban teachers in the year 2010-11.
8. 69 % of the publications are from urban college teachers.
9. 40 % of the colleges does not produce any publications in the form of articles in journals and conference proceedings or in the form of chapters in books for the year 2010-11, 35 % of the colleges does not published any articles in the conference

proceedings or in the journals, whereas, 60 % of the colleges are not published their articles in the form of book chapters for the year 2011-12.

10. Among these colleges, S.S. Dempo College of Commerce & Economics, Altinho, Panaji produced 18 % of the publications in the form of books and journals during the year 2010-11. Whereas, during the year 2011-12, St. Xavier College, Mapusa produced 19 % of the publications in journals/conference proceedings and 64 % in the book form.
11. It is understood that, wherever the faculties are more, number of publications is also more.

#### 6. Suggestions and Recommendations:

- It is suggested to implement promotions and other incentives based on their research productivity in their field of study.
- It is suggested Principals of the less productive colleges should give more importance to their teachers to encourage research in their institutions, as their research productivity is very less compared to the other institutions.
- Government college contribution towards organizing workshops / conferences is less compared to government aided private colleges, so it is suggested to government colleges to organize more number of research oriented conference / workshops in their colleges and provide an opportunity to local teachers to publish their research work in the national / international level conferences.
- It is suggested to maximize the use of library resources especially electronic resources of N-List from INFLIBNET.
- It is suggested to give free reprographic facility and internet facility to the teachers for writing/publishing more number of articles in the national and international level publications.

#### 7. Conclusion:

It is important to measure performance at least annually, to evaluate the effect of specific actions on long-term results and on the organization's vision and mission. The institutions should measure current performance against previously set expectations, and consider any changes or events that may have impacted the desired course of actions.

Research publications are clearly one of the quantitative measures of the basic research activity in a country or an institution. The institution, which generates a good number of the research papers in a particular field, is considered as a frontier institution in that field. Such studies help decision makers and policy planners in the respective field to make available adequate facilities and direct the research activities in the proper direction. The recent innovation programmes of the DST such as INSPIRE, JC Bose Professorships, should prove helpful in increasing the number and quality of R&D personnel.

In Goa, Government aided private colleges are more when compared to government colleges. In the St. Xavier College publications are more compared to other college publications, the

reason may be faculties are more in that college, so ultimately they get more time for research work in their field of study and it is also the oldest college in Goa. Since forty % of the colleges are not able to publish any research papers, may be because of lack of time and interest of the teachers in research activity and other physical facility.

Many higher learning institutions are now putting pressure on their teaching staff and others not only to produce new products, processes and services, but to demonstrate their value to the organization. R&D measurement and evaluation systems are no longer an optional choice but soon becoming a mandatory requirement. Recently in the year 2010 UGC introduced the Academic Performance Indicators for its University / College teachers for the Promotion of their teaching staff. It is mandatory to get minimum marks by publishing research articles to get next career advancement / promotion.

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